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ABSTRACT

This paper describes a program for improving reading skills at the beginning of first grade so that a rapid acquisition of skills will enhance students' ability to succeed in their respective basal programs. The targeted population used a first grade in a suburban school (Site A) and a first grade in a mid-sized, Midwestern city school (Site B). The problems of poor word attack and phonemic awareness skills were documented through baseline testing during the first weeks of school. Analysis of probable cause data revealed that poor reading skills can be related to poverty, disadvantaged households, or lack of readiness to read on the local level. Published literature reveals that additional causes for poor reading skills are deficits in sound/symbol association, lack of phonemic awareness, a failure of teachers to address students' varied learning styles, lack of exposure to print, competition from TV and videos, and developmental delays. A review of solution strategies by reading researchers, combined with an analysis of the local settings, resulted in the selection of phonemic awareness instruction as an intervention. Instruction in listening, sound/symbol association, segmenting words, and blending sounds using methods which target the varied learning styles of students were developed and implemented with the help of parent involvement. Postintervention data indicated an increase in phonemic awareness, improved decoding skills, and an increase in sound/symbol association proficiency. (Contains 53 references, and 6 tables and 7 figures of data; appendixes contain tests, evaluation data sheets, survey instruments, lesson plans, and "trading cards.") (Author/RS)

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ED 410 532

IMPROVING READING SKILLS THROUGH PHONEMIC AWARENESS

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An Action Research Project Submitted to the Graduate Faculty of the School of Education in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Teaching and Leadership

Saint Xavier University & IRI/Skylight
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DEDICATION

Our Action Research Project is dedicated to our families (husbands, children, and grandchildren) who have supported, encouraged, and loved us. They all were especially supportive during the last two years.

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Abstract

This report describes a program for improving reading skills at the beginning of first grade so that a rapid acquisition of skills will enhance students' ability to succeed in their respective basal programs. The targeted population is a first grade in a suburban school (Site A) and a first grade in a mid-sized, Midwestern city school (Site B). The problems of poor word attack and phonemic awareness skills will be documented through baseline testing during the first few weeks of school.

Analysis of probable cause data revealed that poor reading skills can be related to poverty, disadvantaged households, or lack of readiness to read on the local level. Published literature reveals that additional causes for poor reading skills are deficits in sound/symbol association, lack of phonemic awareness, a failure of teachers to address students' varied learning styles, lack of exposure to print, competition from TV and videos, and developmental delays.

A review of solution strategies by Reading Researchers, combined with an analysis of the local settings resulted in the selection of phonemic awareness instruction as an intervention. Instruction in listening, sound/symbol association, segmenting words, and blending sounds using methods which target the varied learning styles of students will be developed and implemented with the help of parent involvement.

Postintervention data indicated an increase in phonemic awareness, improved decoding skills, and an increase in sound/symbol association proficiency.

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The reading skills of the targeted first grade students are poorly developed. Scores on word attack tests and tests of phonemic awareness are low.

Immediate Problem Context

There are two targeted populations which will be used in the research. The first community will be referred to as Site A, and the second community will be referred to as Site B.

Local Settings

School Site A

The elementary school building mimics the geographic boundaries of the school district in its sprawling hodgepodge design, having been added on to five times in its relatively short history. Inside the long, ranch-style building are 27 classrooms, most of fairly generous dimensions. The Head Start program is in its inaugural year. There is one Early Childhood class, five kindergartens, four first grades, four second grades, and five third grades. The building also houses the office of the superintendent of the district, a principal's office, a

library, an all-purpose room which is used for physical education classes, a music room, a physical therapy room, two speech therapy labs, a Title I lab, one classroom for students with severe and profound disabilities and one special education room, kitchen and audio visual workroom. The overall decorating scheme with its bright colors is attitude friendly for students and faculty alike; the hallways and rooms are full of children's projects and displays.

The 450 students in the school are 96.1% White. There is a 39.0% low income rate with 0.0% limited English proficiency. Student mobility is 15.4%, and there is no chronic truancy (0.0%). The average class size is 18.2 for kindergarten, 21.3 for first grade, and 22.0 for second and third grades.

The faculty at Site A is 100% White, 83.8% female, and 16.2% male. The average years of teaching experience is 17.2 years with 24.3% of the staff having post-graduate degrees. Pupil-teacher ratio is 18.3:1 while pupil administrator ratio is 227.8:1.

The administration of the school consists of one principal, White, male, and one secretary. The principal has 20 years of administrative experience, six at the kindergarten through third grade level. The operating expenditure per pupil is $4,010.00.

The program of the school adheres to State of Illinois guidelines for time devoted to the teaching of core subjects. The principal, along with the cooperation of the teachers, spent many weeks preparing for a state quality review. They met all of

the rigorous standards that the state requires. The school offers many special programs for students with special needs. There is a Head Start program, an Early Childhood program, a Title I Reading program staffed by four full-time teachers and a Reading Recovery program. In addition to these programs, there is a class for students with severe and profound disabilities staffed by one full-time teacher and three to four full-time aides. All of the students in the school are serviced by four speech therapists, two physical and one occupational therapist, one music teacher, and one physical education teacher. The computer lab learning center and the teacher's audio-visual workroom are staffed by full-time teacher aides.

The academic program of the school follows a carefully designed curriculum chosen by teacher committees. These committees are guided by the principal and superintendent of the district who supplement available information with outside consultants. Two years ago, a new reading series was adopted by a teacher committee that was guided in their decisions by a reading consultant from Illinois State University. The reading adoption was MacMillan/McGraw Hill, 1993. Every classroom has been supplied with an extensive array of components which accompany the reading units. These are designed to heighten the effectiveness of the literature-based, partially whole language series. The teachers requested a complete phonics course of instruction and were also supplied with these materials, designed by a different publishing firm.

Site A Community

Site A is a Head Start through third grade school in a sprawling suburb about 10 miles from a mid-sized midwestern city. This suburb is dominated by lower-middle class houses and one large government-subsidized housing apartment complex. The boundaries of the partially unincorporated suburb zigzag in and out of neighboring towns and farms in an irregular design. The population of the district is approximately 4,000; 30-35% of these families live at or below the poverty level according to the latest census. The school district is around 65 years old.

School Site B

The school is a red brick one-story building built in 1955. There have been two additions to the building with the most recent one built in 1991. The school includes a large paved playground along with a large open field giving the students ample space to play and run.

School Site B has a total population of 503 K-4 students of which 63% are White, 36.2% are Black, and 0.8% are Asian/Pacific Islanders. Of these 503 students, 46.5% come from low-income families. Within this population, 1.0% are limited English proficient.

The attendance rate at Site B is 94.9%. The chronic truancy rate is 1.0%. The school student mobility rate is 32.4%. The average class size is 22.5 in kindergarten, 24.5 in first grade, 23.0 in second grade, and 24.0 in third grade.

The majority of the students are transported to and from school by bus. Seven buses arrive daily to transport students in regular division classes. Students in the orthopedic, vision impaired, and developmental programs are transported by vans, small buses, and cars. Students from one of the city's three low-income housing projects are also bused to the school. The operating expenditure per student in this school district is $5,556.00.

The faculty/staff of the Site B school consists of 36 teachers, 9 teacher assistants, and 8 support staff members. The teachers of Site B are all female and 99% White. The average years of teaching experience for the teachers is 20.7 years. The percentage of teachers with post-graduate degrees is 55%.

The principal is the only administrator of Site B and is the educational leader in the building. Although very busy, this leader is readily accessible and actively involved with faculty and students. Attending most special education conferences, this principal is instrumental in decisions regarding students' placement and inclusion policies.

In 1986, the unit district was reorganized to incorporate the middle school concept; whereas, children in grades 4-8 are now housed in a separate building. With the recent reorganization, boundaries were moved, and the school population changed. The school population is in socioeconomic decline, causing an increase in the number of low income students attending this school. It is anticipated that the schools will

become eligible for Chapter I services within the next two years. Before Chapter I funds become available, no formal reading programs are available for at-risk reading students or students with reading disabilities.

The majority of students with special needs are serviced in regular division classrooms with full inclusion. A classroom teacher is chosen each year to work with these students. Two special education resource teachers co-teach in these classrooms. These special education teachers divide the time between two classes. Little, if any, pullout teaching is done at the third/fourth grade levels, while approximately 25% of the first grade and a small number of second grade students (both regular and special education) with low reading scores are gathered in small groups for additional reading instruction with resource teachers and the speech pathologist. Phonemic awareness deficits are targeted by the classroom teacher, the resource teachers, and the speech pathologist in an effort to promote reading acquisition.

One self-contained classroom serves the needs of second through fourth grade students who have been determined to need more individual instruction than the regular classroom can provide.

The circular building to the west of the main school facility houses the majority of Mid Central Special Education Association (MCA) students. These 43 students are physically handicapped or visually impaired. Other MCA students are in

inclusion first, second, and third grade classes with full-time resource teachers.

Classes for 18 students with developmental delays are also in this circular wing. These students, as well as all MCA students, reside locally and in surrounding communities as far as 50 miles away from this location. Speech pathologists and occupational therapists are provided for each of these programs. Two students with Down Syndrome are enrolled in regular classes at the present time. Each student has a full-time attendant.

Site B Community

Site B is located in the center of a midwestern city which is midway between two of the nation's largest cities, this city being about three hours in either direction from a giant Metropolis. The target city has a population of 113,504 people.

The school is one of the primary schools in a district which consists of 22 primary and middle schools, one magnet school, and four high schools.

Site B school is situated in a neighborhood of single family homes and three churches. The neighborhood is made up of middle to upper middle class families. The average sale price of a single family home is $74,935.00. The median effective buying income is $33,488.00.

The median age of the population in Community B is 34.8 years. There are 150,700 employed people. Within the population 77.9% are high school graduates and 12.8% have had four years of college.

Community B has three hospitals, one of which is a trauma center. It has a private university and a medical school affiliated with another university. The community offers a variety of cultural and recreational activities.

Regional and National Context of the Problem

Current evidence of problems with reading on a national level comes from the National Assessment of Educational Progress (NAEP). In April of 1995, this national organization revealed the most recent reading scores for elementary age children. Students in three grades in 39 states were tested. Less than a third of these students were proficient in reading, and only 2 to 5% were reading at advanced levels. This research also indicates that, although middle class children do show some reading deficits, children from low-income and disadvantaged households are severely affected (McPike, 1995). In "Learning to Read: Schooling's First Mission," the editor of American Educator magazine states that the ability to read is central to living a fulfilling life. If a child does not learn to read fluently, broadly, and reflectively across all content areas, the chances for academic success, financial success, the ability to find interesting work, personal autonomy or self-esteem are particularly non-existent (McPike, 1995).

Keith Stanovich, one of the world's leading researchers in area of reading, twice receiving the International Reading Association's Albert J. Harris award, used the biblically referenced "Matthew effect" to describe the paths followed by

those children who get off to a good start in reading and those who do not. To summarize his analogy, children who start school with little phonological awareness have trouble acquiring decoding skills, struggle, lose interest and show halting progress. While children who quickly develop decoding processes, find reading enjoyable, read more, develop syntactic knowledge, retain vocabulary, and broaden their knowledge (Stanovich, 1986). The downward spiral is the cause for concern among educators nationwide. Researchers feel the number of children who get caught up in the unproductive scenario is in the millions (Stanovich, 1986).

Adams states that perhaps no other educational debate is as politically charged as the controversy that surrounds the teaching of beginning reading. She goes on to point out that twenty years of research have consistently demonstrated that many beginning readers and nearly all students with reading disabilities have difficulties with phonemic awareness tasks (Adams, 1990).

Frost and Emery have stated that approximately 3% to 6% of all school-aged children are believed to have developmental reading disabilities or dyslexia. Almost 50% of children receiving special education have learning disabilities with dyslexia being the most prevalent form. Current research indicates that the vast majority of children with dyslexia have phonological core deficits. Without direct instruction in phonemic awareness and sound symbol correspondence, these

children generally fail to attain adequate reading levels (Frost & Emery, 1996).

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to document and assess the phonemic awareness skills of the targeted first grade students, several assessment instruments were used. These instruments were administered to the whole class or to students individually in an interview setting depending on the type of test administered. There are eighteen students in the class at Site A and twenty-one students in the class at Site B. Two standardized tests were administered, the Test of Phonemic Awareness (Torgesen & Bryant, 1994) and the Woodcock Reading Mastery Test (WRMT-Subtest 4). In addition to these two tests, two tests were designed by the teachers who implemented the intervention; they were the Test of Blending Sounds and Segmenting Words (Appendix A) and the Test of Sound/Symbol Association (Appendix B). In addition to these four phonemic awareness and word attack tests, the students were also asked to complete a Survey of Prereading Attitudes (Macmillan/McGraw Hill) and a Likert Scale which also measured prereading attitudes and experiences (Appendix C).

To administer the Test of Sound/Symbol Association, the

teacher gave the sound of a letter and asked the students to write the letter that makes that sound. This test was administered in a whole group setting, and the students' responses were recorded on an Evaluation Data Sheet (Appendix D). When assessing the ability to blend sounds and segment words using a teacher-designed test, the teacher held an individual interview with each student. During this interview session for evaluating blending sounds skills, the student was first invited to give the whole word in "People Talk" that the teacher was saying in "Robot Talk" for evaluation of blending skills. In the segmenting words section of the interview, the student was presented with a pile of blocks. The student was then invited to pull a block from the pile for each sound heard in the word the teacher said. These responses were also recorded on the Evaluation Data Sheet as the test was being administered.

Determination of students who are at risk of failure for the skills of blending sounds and segmenting was calculated on a percentage of correct responses basis; students scoring below 80% were considered to be in need of special instruction. On the Sound/Symbol Association Test, 76% or above was considered satisfactory while students scoring below that figure were considered to be at risk of failure.

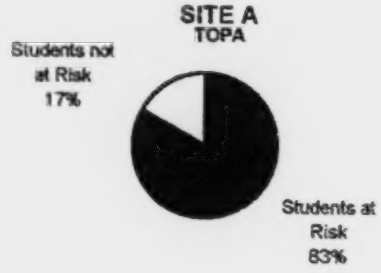
The Test of Phonemic Awareness (Torgesen & Bryant, 1994) was administered in a whole group setting so that the research team could assess reading problems due to difficulties in processing phonological features of words. The Woodcock Reading Mastery

Test, Subtest Four, was administered to the students in an individual interview setting. This test provided data on the student's ability to apply phonic and structural analysis skills.

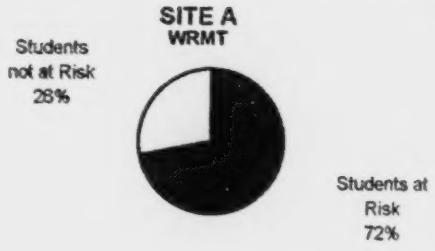
Scores on the TOPA and the WRMT-4 standardized tests were evaluated according to publisher recommended guidelines. The results of these tests can be found in Figure 1 and Figure 2. Any student who scored below the recommended percentile was determined to be at risk of failure to learn to read.

In addition to determining the skill level of the targeted students, the team used two further instruments to assess the prevailing attitudes of the students toward the reading process. The first was a Self-Assessment Survey, and the second was a Reading Attitude Inventory which employed a Likert Scale.

In Figure 1, the percentage of students at risk of failure to learn to read as determined by the results of the two standardized tests is illustrated. In Site A, 83% and in Site B, 67% of the targeted students exhibited deficiencies in phonemic awareness due to difficulties in processing the phonological features of words as determined by the results of the Test of Phonemic Awareness. Also pictured in Figures 1 and 2 are the results of the Woodcock Reading Mastery Test, Subtest Four. Results of this test indicate that 72% of Site A students and 76% of Site B students are unable to apply phonic and structural analysis to the process of word attack.

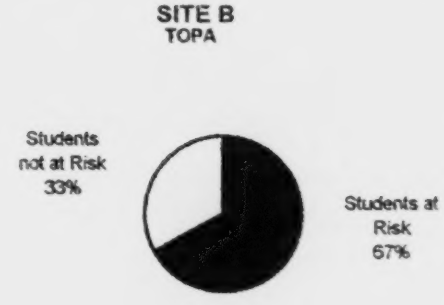


% of Students with reading problems due to difficulties in processing phonological features of words

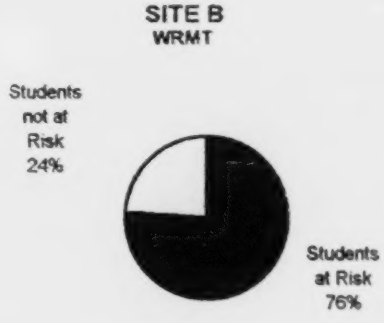


% of students scoring below grade level

Figure 1 Site A Percentage of students with reading problems due to difficulties in processing phonological features of words on the TOPA and percentage of students scoring below grade level on WRMT-R.



% of students with reading problems due to difficulties in processing phonological features of words



% of students scoring below grade level

Figure 2 Site B Percentage of students with reading problems due to difficulties in processing phonological features of words on the TOPA and percentage of students scoring below grade level on WRMT-R.

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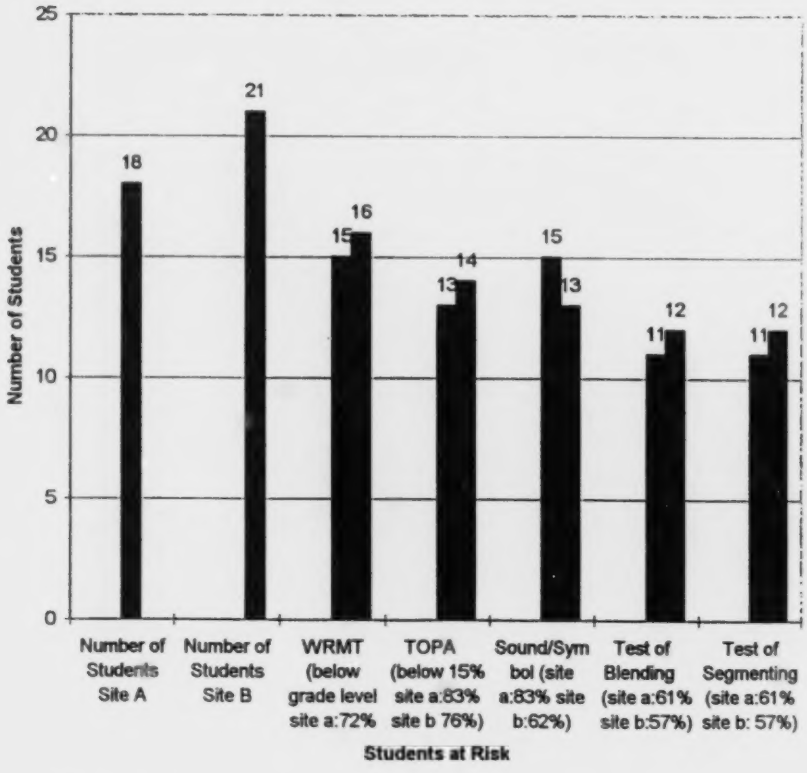
In Figure 3, the percentage of students who were determined to be at risk according to the two standardized tests and the two teacher-designed tests is illustrated. This percentage figure indicates that a significant number of students at each site is at risk of failure to learn to read because of deficiencies in phonemic awareness and word attack and may benefit from a carefully designed intervention that will be designed to increase phonemic awareness.

Figure 3



Red = A Blue = B

Figure 3 Number and percentage of students determined to be at risk by scores on diagnostic test battery.

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Table 1 is a summary of the results of the Self-Assessment Prereading Survey. These results indicate that a large majority of the students at both sites have a positive attitude toward reading, writing, listening, and speaking. Many of the students consider themselves to be good readers in spite of the fact that they are just beginning the process of learning to read. However, 1/3-1/2 of students at both sites expressed negative feelings about reading aloud to a group and coming to a word they don't know while reading.

Table 1

Student Responses on Self-Assessment Survey

	Site A			Site B		
	Yes	Neutral	No	Yes	Neutral	No
Do you like to read?	11	5	2	6	3	2
Are you a good reader?	12	3	2	7	1	5
Do you like to write?	7	8	3	5	5	3
Are you a good writer?	16	1	4	9	0	2
Are you a good listener?	14	0	3	9	0	4
Are you a good speaker when you speak in front of the class?	15	0	3	10	0	3

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In Table 2, a summary of the results of the Likert Scale of Prereading Attitudes is depicted. This summary illustrates that while a clear majority of the students have a positive attitude toward reading and the process of learning to read nearly 39% at Site A and 45% at Site B express a dislike or no opinion when asked the question, "Do you like to read?" and 61% at both sites expressed a dislike or no opinion when asked, "Do you like to write?"

Table 2

Student Responses on Prereading Attitude Survey

Teacher reads aloud	31	4	1
Receiving book as a present	34	1	1
Reading books at home for fun	31	3	2
Reading aloud to a group	25	7	4
Reading aloud to teacher	27	4	5
Feelings about coming to a word you don't know	18	9	9
Feelings about doing worksheet or a workbook	30	1	5
Feelings about going to school	33	1	2
Feelings about how well you read	32	1	3
Friends' feelings about your reading	25	7	4

* Site A and Site B results were similar, so they were combined.

Probable Cause

Analysis of probable cause data revealed that poor reading skills on the local level can be related to poverty, disadvantaged households, or lack of readiness to read. Published literature reveals that additional causes for poor reading skills are deficits in sound/symbol association, lack of phonemic awareness, a failure of teachers to address students' varied learning styles, lack of exposure to print, and competition from TV and videos.

While an extensive review of the current literature revealed several probable causes for students to be at risk of failure to learn to read, a growing number of studies have indicated that phonemic awareness is a necessary prerequisite, not simply a strong predictor, for success in learning to read (Bradley & Bryant, 1983, 1985; Tunmer, Herriman, & Nesdale, 1988). Juel and Leavell (1988) determined that children who enter first grade lacking phonemic awareness are unable to induce spelling-sound correspondences from print exposure or to benefit from phonics instruction. Adams (1990) also concluded that children who do not acquire phonemic awareness are severely handicapped in their ability to master print. Studies consistently find differences in phonological awareness between good and poor readers.

It is the separate existence of the sounds (phonemes) that helps children make the connection from print to speech and that anchors the logic of the writing system (Blachman, 1984; Juel, 1991; Stanovich, 1986). Faced with alphabetic print, a child's

level of phonemic awareness on entering school is widely held to be the strongest single predictor of the success that child will experience in learning to read or of the likelihood that the child will fail. This relationship has been demonstrated not only for English (Blachman, 1984; Juel, 1991; Stanovich, 1986) but also for many other languages (Adams & Bruck, 1995).

Along with deficits in phonemic awareness, students may also have language deficits due to lack of exposure to print during preschool years. The importance of literacy artifacts (books, pictures, labels, writings, etc.) in children's homes was pointed out in a study by Thorndike (1976), who examined reading comprehension in fifteen different countries. These results indicated that the socioeconomic level and the availability of print in the home were the two factors that predicted reading achievement. Researchers have found literacy artifacts and print-related events to be pervasive in all kinds of homes in literate societies (van Kleeck, 1990). However, the range and quantity of artifacts varies; for instance, the number of children's books purchased varies as a function of socioeconomic status, with lower class families providing far fewer books for their children; however, this finding has not always been consistent (Chall, et al., 1983; and Miller, 1982). Literacy artifacts are involved in various ways in the literacy events that take place in homes. It is in the context of these literacy events that much of the preschooler's knowledge about literacy is acquired (van Kleeck, 1988). According to Marilyn Adams (1990),

the clock is ticking most relentlessly for youngsters from low-income and disadvantaged households. These are the children who do not come to school with the thousands of hours of exposure to print and conversation and word play and informal teaching that occurs in most middle-class households. In contrast to these fortunate ones, there are children who have barely even seen a book before entering school (Adams, 1990).

Educators today are also faced with a challenge of how to nurture learning in an environment filled with distractions and social dissolution. The schools of the 1990's face obstacles more difficult to eliminate than those in earlier times. Substance abuse, teen pregnancy, depression, and persistent competition from TV and videos can be serious impediments to learning (Benson, 1993).

Along with a lack of phonemic awareness and exposure to print and a multitude of negative environmental factors, students may not be able to acquire reading skills because of teachers' failure to present lessons in more than on of the learning channels because they are not aware of the multiple intelligences theory. In 1985, Howard Gardner published research on multiple intelligences in his book Frames of Mind. His research indicates a complex of seven intelligences, seven ways of knowing, perceiving and understanding life. Gardner stated at that time that there are probably other intelligences that have not yet been discovered, and more recently, he has published research indicating a possible eighth intelligence. Gardner's multiple

frame model of intelligence characterized learners across seven sets of competencies; musical, logical-mathematical, spatial/visual, bodily-kinesthetic, intrapersonal, interpersonal, and verbal/linguistic (Gardner, 1985). These categories are used as a means for discovering a learner's competence in a variety of learning situations. David Lazear, in his book Seven Ways of Knowing, indicates that each of the intelligences can be used as a means to gain knowledge in areas beyond itself (Lazear, 1991). Each of us has all of these intelligences; however, since not all of these intelligences are developed equally, students do not always know how to use each of them effectively. Acquiring the ability to diagnose and teach to the various intelligences of students should be paramount on every teacher's list of pressing issues. According to Lazear, this type of information is important because it can help students develop a fuller spectrum of intellectual abilities for use in the classroom, and in their lives beyond the classroom. It can aid teachers by finding additional strategies for utilizing students' stronger intelligences thus helping more students succeed in school (Lazear, 1991).

In addition to the variety of probable causes for failure to develop reading skills that are suggested in the literature on learning to read, some additional local problems may add to this problem. As indicated in Chapter One of this paper, many of the students in Site A and Site B live in low income or disadvantaged households. In Site A, 30-35% of families live at or below the

poverty level. In Site B, 46.5% of the students are from low income families. This is not an indicator of future problems in itself, but when added to the other indicators listed here, it could be a contributing factor for some students. Researchers indicate the importance of environment in early development of literacy related skills. The poverty that exists to some extent in both Site A and Site B may be related to the numbers of students considered to be at risk of failure to learn to read.

CHAPTER 3

REVIEW OF LITERATURE

Reading ability is composed of two factors, decoding and comprehension. Decoding is the process that leads toward recognition (Adams, 1990). Learning to break that code of written text is partly dependent on being aware that words are composed of sequences of meaningless and somewhat distinct sounds (i.e., phonemes). This is often referred to as phonemic awareness. Phonemic awareness is necessary to decode an alphabetic language because print decoding depends on mapping or matching phonemes to graphemes (i.e., letters in English) (Adams, 1990).

Juel, Griffith, and Gough (1986) found that phonics instruction is not effective unless children have, or quickly develop, some phonemic awareness at the beginning of first grade. Approaches in which systematic code instruction is included with meaningful connected reading can result in superior reading achievement overall (Juel, et al., 1986). Explicit phonics, the process of building instruction systematically from letters to words, is more effective than implicit phonics, the process of teaching from words to letter-sounds (Adams, 1990). The central

belief of each of the many phonics programs is that knowledge of the letter-to-sound correspondences underlying our system of writing is key to proficient reading.

Research indicates that the most critical factors beneath fluent word reading is the ability to recognize letters, spelling patterns, and whole words effortlessly, automatically, and visually. The ability to sound words out - even while being an invaluable step toward reading independence - is not the primary positive outcome of phonics instruction. The primary goal of all reading instruction is comprehension which depends critically on the ability to sound out words (Adams, 1990).

Knowledge of syntactic, semantic, and discourse-level structures contributes to reading performance. More predictive of early reading performances, however, is a child's phonological awareness; that is, the ability to reflect on and make judgements about the discrete phonological properties of words (Bradley & Bryant, 1985; Mann & Liberman, 1984; Wagner & Torgesen, 1987). Kamhi and Catts (1989) reported in "Language and Reading" that the most profound differences between oral and spoken language involve the perceptual and social bases of spoken language development and the explicitly phonological awareness required to become a proficient reader. These differences explain to a large extent why learning to read is not a simple derivative of spoken language, as well as why some children have difficulty learning to read. Investigations have examined speech sound awareness in children whose reading abilities vary across the continuum

(Catts, 1989). The results of this work have consistently supported a strong positive relationship between children's awareness of phonological structure of words and their reading ability (Blachman & James, 1985; Helfgott, 1976; Liberman, Shankweiler, Fisher, & Carter, 1974). This relationship has been demonstrated across a wide range of subject areas (Calfee, Lindamood, & Lindamood, 1973) and experimental tasks (Stanovich, Cunningham, & Cramer, 1984).

In a review of this research, Stanovich (1986) concluded that phonemic awareness is a more potent predictor of reading achievement than non-verbal intelligence, vocabulary, and listening comprehension, and that it often correlates more highly with reading acquisition than tests of general intelligence or reading readiness.

Juel and Leavell (1988) determined that children who enter first grade lacking phonemic awareness are unable to induce spelling-sound correspondences from print exposure or to benefit from phonics instruction. Likewise, in her comprehensive survey of the research on learning to read, Adams (1990) concluded that children who fail to acquire phonemic awareness are severely handicapped in their ability to master print. There is substantial evidence that phonemic awareness is strongly related to success on reading and spelling acquisition (Ball & Blachman, 1991; Treiman & Baron, 1983; Yopp, 1992).

The ability to identify and manipulate the sounds of language is called phonological awareness according to Adams

(1990) who described five levels of phonological awareness ranging from an awareness of rhyme to being able to switch or substitute the components in a word. While phonological awareness affects early reading ability, the ability to read also increases phonological awareness (Smith, Simmons, & Kameenui, 1995).

Phonological awareness can be facilitated further by the use of segmentation activities (Blachman, 1989; Kewkowicz, 1980). Word play involving segmenting words into the constituent sounds, rhyming words, and blending sounds to make words is also essential to the reading process. In conjunction with segmentation training, children should be exposed to sound blending activities. Blending tasks require children to combine or blend together a series of speech sounds to form a word. In teaching phoneme segmentation and blending, it is often helpful to provide children with visual cues (Elkonin, 1973; Lewkowicz and Low, 1979). Catts (1991) wrote that children with "weak" auditory systems may especially have difficulty blending sounds. When teaching blending tasks, tactile cues can be included along with visual cues. This may help children achieve smooth, continuous sounds.

Individuals with pronounced reading disabilities sometimes must resort to unusual measures of learning, such as mastering the letters through tactile-kinesthetic exploration. The particular subject matter may also play an important role in improving reading comprehension (Gardner, 1983). In view of the

various reading systems already invented by human beings, such as pictographic systems, and logical mathematical systems for use with computers, it seems clear that one's facility in reading will depend on more than one's linguistic capacities (Gardner, 1983).

Project Outcomes and Solution Components

> As a result of phonemic awareness instruction during the period of September, 1996, to January, 1997, the targeted first grade students will increase reading skill as measured by the TOPA, The Woodcock-Test 4, Reading Mastery Test-R, the Tests of Blending and Segmenting, and the Attitude Survey and Inventory.

In order to achieve the stated improved reading outcome, the following processes are necessary

1. Listening skills will be taught.
2. Sound/symbol association will be systematically taught.
3. Instruction will be given in sentence segmenting.
4. Explicit instruction will be given in segmenting words.
5. Activities will be provided to teach the skill of blending words.
6. Review and practice of decoding skills in C-V-C books will be implemented.
7. A program will be implemented to encourage parent involvement.

These seven global objectives will be implemented according to the following reading intervention plan.

1. Listening skills will be taught.

Students in this information age need to be able to hear with thoughtful attention. It is vital that educators and

parents teach children the difference between listening and hearing as well as the difference between listening and obeying (Pruden, 1990). Students tend to think that listening and obeying are the same. As part of a daily 15-minute intervention, instruction and active listening will be taught.

a. Students will be taught how we hear (Pruden, 1990).

b. The three rules of good listening will be taught: Sit in "Brain Alert" position; Watch the person who is talking; Keep your mouth and body quiet (Pruden, 1990).

c. Practice to establish listening positions will be implemented during direction times and during class discussions.

d. Students will be given a listening cue when active listening is essential. A verbal cue will be discussed and agreed on by the class. For example, "Brain Alert" could be a cue the teacher uses to activate good listening.

e. Each child is responsible for his/her own listening and understanding. Different listening styles from Pruden's Listen to Learn Handbook will be noted and discussed (1990).

2. Sound/symbol association will be systematically taught.

Research indicates that how quickly children become proficient in using the alphabet to read is related to their phonological awareness (Catts & Vartrainen, 1993). These researchers go on to state, "For most children, this comes in

first grade where they learn the alphabet and how it works. Children learn how to divide words into phonemes and represent these phonemes with letters" (Catts & Vartrainen, p. 111, 1993). This sound/symbol correspondence serves as the basis for learning to read an alphabetic language. Each year for various reasons, a number of students enter first grade with limited sound/symbol knowledge. Although letters and sounds are traditionally reviewed at the beginning of first grade, not all students are able to learn the sound/symbols in a timely fashion in order to progress with reading instruction. Students in the intervention classrooms will be taught sounds/symbols associations using a tactile-kinesthetic cueing system in daily 15-20 minute sessions.

a. Students will be taught the concept of letter vs. sounds (Appendix E).
b. Vowel sounds will be taught together but apart from consonants (Appendix F).
c. Initially, a limited number of voiceless consonants will be taught for ease in segmenting/blending activities.
d. Motor movements involving hand cueing will be used for vowels and consonants (Appendix G).
e. Tactile instruction of mouth and tongue positions for consonants will be taught (Appendices H & I).
f. Visual aids for sound production will be displayed in classrooms (Appendix J) (Chamberlain & Strode, 1993).

g. Practice will be provided in making the connection between the letter (verbal/linguistic), hand cueing (kinesthetic), and the sound (visual, tactile cueing, logical) (Appendix K).

3. Instruction will be given in sentence segmenting.

Beginning reading instruction typically focuses on words and sounds coded by means of print symbols. Those who are not explicitly aware of these language elements may become confused by such instructions and rely on rote responses (Sawyer, 1987). It is important to teach students at their level of language segmenting awareness. Often students need to begin segmenting at the sentence level.

a. Auditory training for sentence segmenting will be provided through listening to rhyming stories, marching activities, as well as clapping to the beat (clapping once for each word in a sentence). These activities will occur at least three times weekly.

b. Students will be taught word boundaries by pointing to words as sentences are being read.

c. Sentence segmenting will be done through attending to word features such as length and beginning or ending sounds.

d. Sentences will be written on strips. Students will take turns showing where to cut the sentence into words. Task groups will work together to reassemble the sentence.

4. Explicit instruction will be given in segmenting words.

Studies have been conducted to examine whether training in both syntactic (blending) and analytic (segmenting) phonological skills are necessary to impact reading skills. One such study (Torgesen, et al., 1992) found that groups who were taught both of these skills did significantly better than the groups trained only in blending skills. In order to aid in the training of segmenting skills, students will be taught to segment using motor hand cues. The purpose of this is to provide a motor memory and one-to-one correspondence of sound/symbol productions. Additionally, students will be practicing mouth and tongue positions. Children will feel the correct position for each particular sound while associating this sound with the printed letter during daily 15-minute phonemic awareness lessons.

a. Students will decode and segment vowel-consonant pattern syllables or words using hand cueing of each sound (Appendix L).

b. Students will decode consonant-vowel-consonant (CVC) pattern words using hand cueing for each sound. Instruction will begin with rhyming words and then non-rhyming CVC words (Appendix M).

c. Students will decode CVC pattern nonsense words using hand cueing for each sound (Appendix N).

d. Students will decode by manipulating blocks to segment words (Appendix O).

e. Students will decode and label vowels in the word (Appendix P).

f. Special needs students may need to be taught to stretch and continue production from sound to sound. (See blending procedures for explanation.)

5. Activities will be provided to teach the skills of blending words; however, blending may need to be taught before segmenting in some cases.

"Because children have special difficulties analyzing the phonemic structure of words, reading programs should include explicit instruction in blending" (Adams, p. 126, 1990).

"Blending is the basis of phonics instruction. It is the key strategy that the children learn in order to apply the alphabetic principle and open up the world of written text" (Bereiter, et al., 1995).

Students will be taught blending with added repetition and adaptations for students with special needs on a daily basis.

a. Students will be given practice blending longer words (i.e., reading vocabulary words from basal or spelling words) (Appendix Q).

b. Students will practice blending CVC pattern nonsense words (begin with continuant sounds) (Appendix R).

c. Students will be given hand cueing and verbal productions. (Hand cueing may be confusing at this point or may overload the student's learning capabilities causing delay in acquisition of the concept

being taught.)

d. Adaptations will be made for special needs.

1) Presenting words with pictures to choose from (Appendix S).

2) Sound blending will be approached and taught through stretched segmenting of word (Appendix T).

3) Actual stretching a word apart and putting it back together may be taught (Appendix U).

6. Review and practice decoding skills in short-vowel pattern reading books (Primary Readers by Educators Publishing Service).

Most educators and researchers agree on two important facts about learning to read. The first fact is that the final goal of reading lessons is to comprehend the meaning of the text. The second fact is that this comprehension evolves when students understand the alphabetic principle, which is to learn to use letter-sound relationships in reading individual words (Torgesen & Bryant, 1994).

To gain phonemic awareness is to become aware of the sounds of our language. Phonemic awareness is critical in learning to read and write an alphabetic language because the ability to read and write requires connecting letters to phonemes (Griffith & Olson, 1992). Once students have an awareness of phonological segments in words and the ability to manipulate these segments, they can progress to the acquisition of reading skill (Stanovich, 1987). According to Bradley and Bryant (1983; 1985), there is a casual relationship between phonological awareness and reading

and spelling. In this phase of the intervention, students will be encouraged to select a book to read from a set of books that contain only short-vowel pattern words and simple sentences. Each student will have the opportunity to practice applying the blending and segmenting skills learned earlier to the decoding of new words. When a student masters one book, he/she moves on to another until all the books of this pattern are mastered. Cooperative groups will be set up on a daily basis so that students can practice new words that appear in these basic readers by blending and segmenting the sounds in each new word orally to one another. They will also become familiar with these new words through their dictation exercises.

a. Dictation

As students practice decoding through blending, they practice encoding through dictation (Bereiter, et al, 1995). At first students will be asked to write words sound-by-sound using the hand signal cueing they have learned. Dictation provides practice in establishing the associations between sounds and spellings. Dictation begins with sounds in sequence, progresses to whole word dictation, and ultimately to sentence dictation. The vocabulary in the short-vowel pattern readers can be reviewed by including it in dictation lessons. After students have mastered the sound-letter relationships, dictation sessions will be given for five minutes each day progressing from sound-by-sound

dictation to whole words and then to sentences.

b. Separate Curriculum Integration

The listening skills, hand signals, blending, and segmenting skills that the students are learning throughout this intervention are not meant to be taught as isolated skills but rather as skills that can be incorporated into all other language and reading instruction. This phonemic awareness intervention plan only deals with the phonemic awareness instruction portion of language instruction, and for it to be most effective, the techniques that are taught during the intervention should be carried over into all language curriculum areas.

7. Parent Involvement

Perhaps no other educational issue is as politically charged as the issue of teaching beginning reading (Adams, 1990). Some parents have heard that learning to read is as natural as learning to speak (Goodman & Goodman, 1979). Other parents may believe that phonics instruction must precede reading instruction (Blachman, 1991). This confusion about the reading process and the desire to promote support at home for the intervention dictates the need for an informational parents' meeting. This meeting will be held sometime during the first few weeks of school. During this meeting, parents will receive hand-outs about the phonemic awareness program and information about how they can help their children at home.

Studies show a positive connection between a student's ability to learn to read and his/her home environment (Morrow & Paratore, 1993). Parents will be encouraged to read to and with their children on a daily basis in addition to the phonemic awareness exercises assigned as home practice. The pre-reading attitude inventory will be explained with an emphasis on how the parents can best facilitate the completion of this inventory. Frequent communication between the teacher and the parents will be supported by the homework check sheet (Appendix V). This homework check sheet will be used to monitor the student's home practice in the phonemic awareness skills and in decoding and reading.

Methods of Assessment

In order to assess the effectiveness of this phonemic awareness intervention, both standardized and teacher-prepared evaluation tools will be used. An initial session of testing will be administered before any intervention begins. This test battery includes a test to determine phonological awareness (TOPA), a test to determine decoding skills (WRMT), an oral test of sound blending, and a written and oral test of segmenting. Further information will be gathered from an attitude inventory and survey. As the intervention continues, the following methods of evaluation will be used every nine weeks.

1. Alphabet sound-letter correspondence until mastery is achieved.

2. Teacher evaluation of blending and segmenting skills during oral testing sessions.
3. Concept of blending sounds to make new words--evaluated by oral reading.

As a final assessment, the following tests will be administered.

1. The Test of Phonological Awareness (TOPA)
2. The Woodcock Reading Mastery test - Subtest 4 - Decoding
3. The Test of Sound/Symbol Association
4. The Test of Blending Sounds
5. The Test of Segmenting Words
6. Reading Attitude Inventory and Survey

Chapter 4

PROJECT RESULTS

Historical Description of Intervention

The objective of this intervention was to improve reading skills at the beginning of first grade. Recent research shows a rapid acquisition of certain readiness skills can enhance students' ability to succeed in their respective basal programs. The first step was to assess the reading skills of all the students in the targeted first grade class at Site A and Site B. The assessments included a test of sound/symbol association, a test of phonemic awareness skills, a test of word attack skills, and two surveys that measured students' attitudes toward the reading process.

The results from these assessments were analyzed. Analysis of the data collected during the preintervention testing revealed that more than two-thirds of the students in both sites lacked word attack skills necessary to read. These data also revealed that more than three-fourths of the students lacked the phonemic awareness skills that researchers have indicated are necessary for reading acquisition. Along with these two definitive tests, the preintervention testing also indicated that more than half of

all students were unable to associate the sound of a letter with its symbol. Tests of blending and segmenting also proved to be difficult to complete satisfactorily for the majority of the students at both sites. While most of the students displayed weaknesses in phonemic awareness skills that are necessary to acquire reading proficiency, almost all of them had a positive attitude toward reading and the process of learning to read according to the surveys which were completed.

Because a clear majority of the students displayed deficiencies in the areas of phonemic awareness, word attack and sound/symbol association, the researchers concluded that the intervention would be implemented most effectively if taught to the whole class.

The whole class at both sites was then placed in a program which provided daily, systematic instruction from the classroom teacher and the speech pathologist. The daily intervention was implemented according to the outline listed in chapter Three of this research intervention.

In the early stage of intervention, the teachers assisted the students in completing the Pruden Listen to Learn Program (Pruden, 1990). Students were taught the difference between listening and hearing with an emphasis on the concept that hearing is a biological function of our body, but listening is a skill we can develop and improve. The students were provided with many opportunities to practice good listening positions and to appreciate many different listening styles. As a result of

this instruction, each class formulated a list of rules for good listening and a signal cue for the teacher to use.

After listening skills were firmly established, students were taught sound/symbol association. This instruction began with the concept of letter versus sound. Once the sound concept of letters had been established, the teachers taught short vowel sounds using the Easy Does It (Chamberlain & Strode, 1993) hand signals in conjunction with the printed letter and many pictures illustrating the words that began or contained that targeted consonant or vowel. Visual aids that illustrated the hand signal formations were displayed in the classroom along side each alphabet letter. Students were also given a small replica of the larger visual aid for the hand signal that they could color and keep in their own "Trading Card Packet." For those students who still had difficulty retaining the sound for the letter symbol, tactile instruction was given using the mouth and tongue position charts (Appendix I). As soon as the students acquired a few consonant sounds along with short vowel sounds, they could begin segmenting vowel-consonant pattern combinations with the aid of hand signal cueing. Many different cooperative group lessons were used for this practice.

Along with sound/symbol associations training, students were given auditory training for sentence segmenting through rhyming stories, marching activities, and clapping games. Instruction was also given in word boundaries as well as concepts of syllable, sentence, and story. This sentence segmenting was

strengthened by practice with cutting apart and reassembling sentences, many times done in partner or small group settings.

In order to aid in the rapid acquisition of segmenting skills, students were taught to segment using motor hand cues (Chamberlain & Strode, 1993). First, students practiced hand and tongue positions for the sound. Then, they decoded and segmented vowel-consonant pattern syllables or words using hand cueing for each sound. Thirdly, they progressed to consonant-vowel-consonant words using rhyming words first then non-rhyming words. After this skill was practiced, students learned to use nonsense words for this practice in order to verify that students were decoding words using phonemic awareness skills instead of relying on their motor memory. A particular favorite game during this phase was the game of manipulating blocks to establish word bases substituting different beginning and ending sounds to form new words.

While segmenting skills are essential to building phonemic awareness, they should be accompanied by instruction in blending. Most students were able to segment words and sentences prior to blending instruction. The instruction at this point in the intervention proceeded to the blending of sounds to make words. Reading vocabulary and spelling words were used primarily for this purpose. Both classrooms emphasized an all important reliance on the hand cueing at this level for segmenting and on the auditory training skill for blending. Students began blending longer, easily recognized words and progressing to C-V-C

pattern nonsense words. Some of the students who had difficulty with this blending were supplied with picture clues and an exaggerated stretching of the sounds as they were blended.

As the students gained skill in phonemic awareness, the teachers guided reading instruction beginning with short vowel pattern reading books, then moving into long vowel pattern books later (Primary Readers by Educators Publishing Service). These books supplied the students with an opportunity to blend and segment while making sound/symbol associations in the context of a short story, and picture clues were available in the books for those who needed that visual aid.

As the students practiced their decoding and blending, they were introduced to dictation. At first, the students were asked to write words sound-by-sound using the hand signal cueing they had learned. During this dictation, students were establishing the associations between sounds and spellings. After they could complete sound-by-sound dictation, they were given whole word dictation and eventually could complete dictation listening to whole sentences. For some, this skill of whole sentence dictation was very slow to emerge, and a few students were still acquiring this skill at the end of January.

In order for this intervention to be as successful as it possibly could be, parent involvement was solicited. During the first month of school, teachers met with parents at the "Back to School Night" and at individual parent conferences. The intervention was explained at this time, and the teachers

emphasized the importance of parent and family participation in completing the homework check sheets on a regular basis. Most parents have been very cooperative and have supported their children in these efforts to become better readers.

The students' progress was assessed on an ongoing basis through classroom assignments. It was also assessed through individual testing of sound/symbol associations and blending and segmenting skills every nine weeks. Evaluation of dictation practice was also completed at the end of each nine week grading period.

Presentation and Analysis of Results

The Tables 3 and 4 show the scores of the targeted first graders from the assessments administered in September and again in January. The September pretest for sound/symbol association revealed that a significant number of students could not connect the alphabet symbol with its related sound; they lacked phonemic awareness as it related to the printed letter. In January, all students were able to give the sound for the letter 96% of the time or better in Site A, and at Site B, students were able to complete the sound/symbol association 85% of the time or better. In addition to these phonemic awareness skills, students at Site A were able to complete the test of blending and segmenting at 100% for all students, and 78% of the students at Site B completed the blending and segmenting test at 100% while the remaining students at that site still improved these skills, though not at 100%.

Table 3 - Site A
Pre Test - Post Test Results

Students	%ile TOPA		G.E. WRMT		% Sound/Symbol Association		% Test of Blending		% Test of Segmenting	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Student A	5	18	K.5	1.8	53	100	0	100	0	100
Student B	14	63	K.5	2.6	73	100	60	100	20	100
Student C	3	50	K.7	1.9	43	96	40	100	0	100
Student D	14	75	K.5	3.7	50	96	40	100	0	100
Student E	12	82	K.7	3.2	81	100	80	100	100	100
Student F	7	82	K.5	3.7	65	100	60	100	60	100
Student G	4	86	K.5	3.2	65	100	20	100	0	100
Student H	2	21	K.5	2.3	27	92	0	100	0	100
Student I	35	82	K.9	8.0	77	100	60	100	80	100
Student J	50	moved	K.5	moved	73	moved	100	moved	80	moved
Student K	7	82	K.9	3.7	73	100	0	100	80	100
Student L	27	82	1.6	16.9	81	100	100	100	100	100
Student M	6	82	1.4	4.2	73	100	100	100	80	100
Student N	2	82	1.7	8.0	77	100	100	100	80	100
Student O	21	82	K.7	2.4	54	100	60	100	80	100
Student P	3	50	K.5	4.2	54	100	80	100	20	100
Student Q	3	86	K.5	1.6	65	100	40	100	60	100

Table 4 - Site B
Pre Test - Post Test Results

Students	%ile TOPA		G.E. WRMT		% Sound/Symbol Association		% Test of Blending		% Test of Segmenting	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
Student A	1	68	K.5	1.8	19	85	100	100	0	100
Student B	35	82	1.7	3.0	100	100	100	100	80	100
Student C	3	2	K.5	1.2	8	100	0	20	0	80
Student D	27	35	K.5	1.2	92	100	0	20	0	80
Student E	5	68	K.9	2.1	96	100	80	100	80	100
Student F	6	27	K.5	2.4	100	100	100	100	40	80
Student G	18	82	K.5	2.1	100	100	100	100	60	100
Student H	35	50	2.3	2.3	100	100	100	100	100	100
Student I	3	86	K.5	1.8	100	100	60	100	80	100
Student J	1	35	K.5	1.6	92	100	60	100	20	100
Student K	7	21	K.7	2.5	100	96	0	100	100	100
Student L	5	50	K.5	1.9	96	100	40	100	100	100
Student M	50	27	1.2	2.4	100	100	100	100	80	100

The results of the TOPA, as illustrated on Figures 4 and 5, clearly indicate acquisition of phonemic awareness skills by all students at both sites, some students acquiring far greater than grade level skills.

The September scores on the Test of Phonemic Awareness (TOPA) indicated that only one-third of the students were at or above the 15th percentile for this skill at both Sites. Whereas, in January, all students scored at or well above the 15th percentile on this test at Site A, 88% of the students scored above the 50th percentile; 92% achieved the targeted score at Site B, with 54% achieving at the 50th percentile or above.

Figure 4

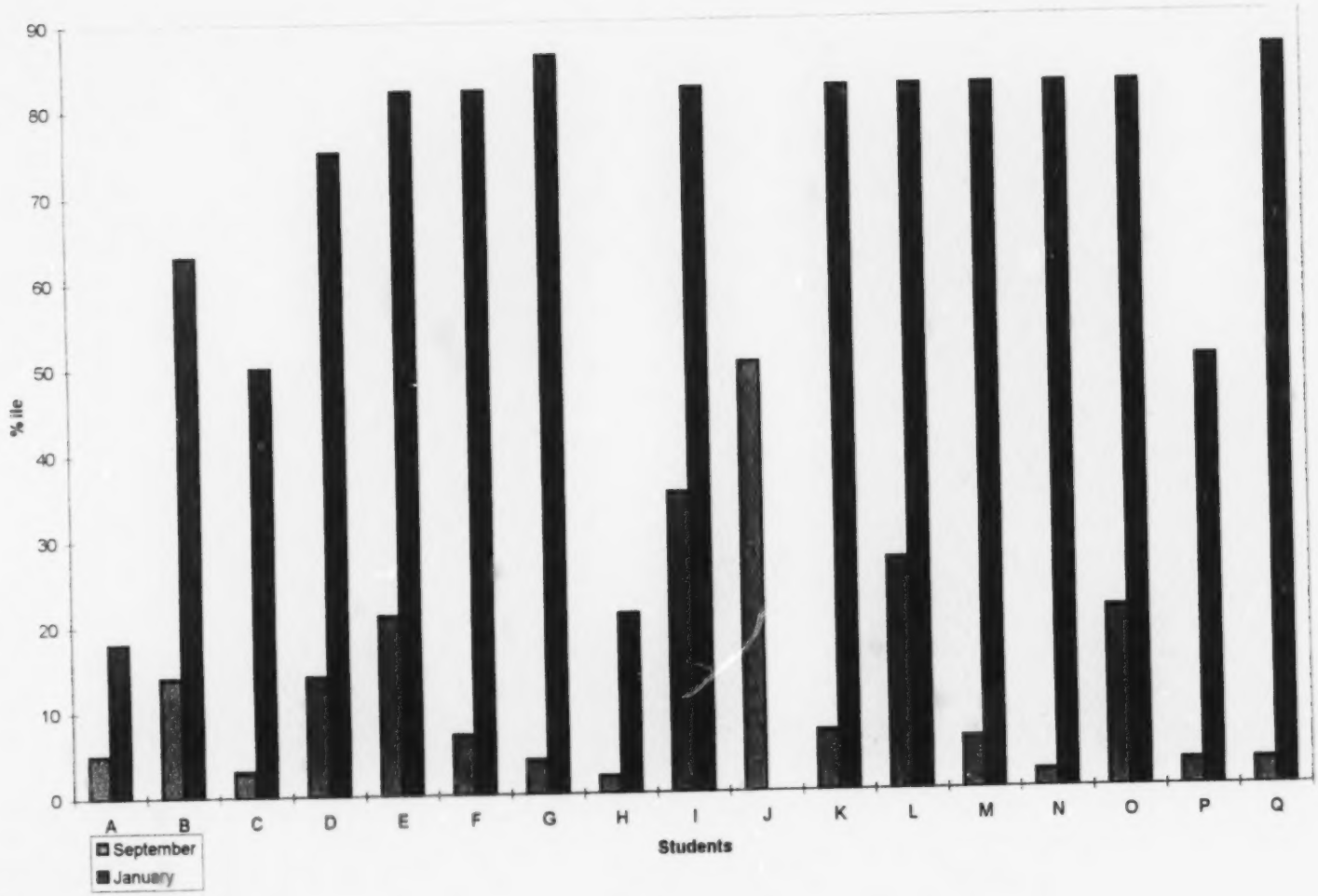

Figure 4 Site A Student Scores of Phonemic Awareness on the TOPA. Targeted score 15 % ile rank

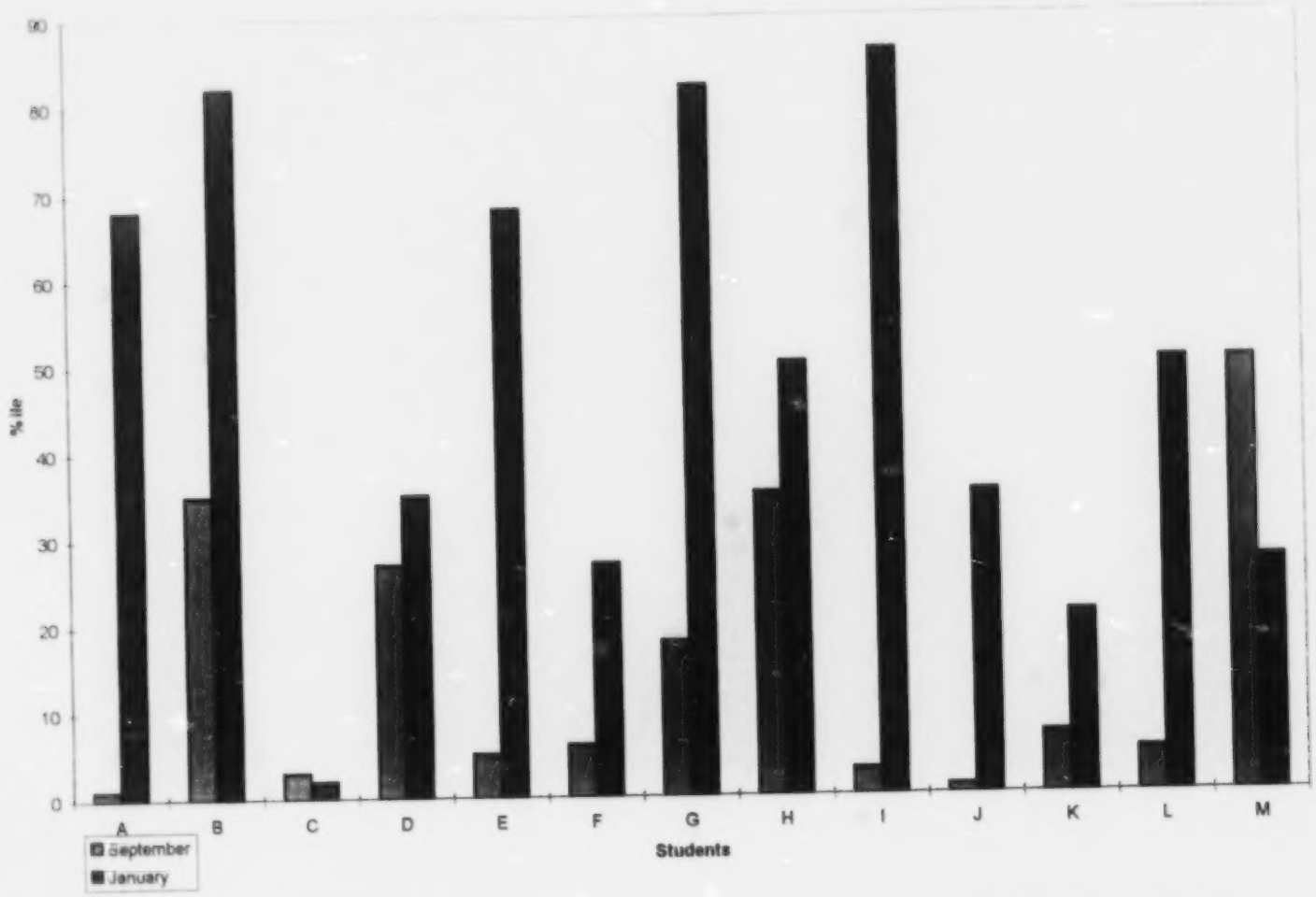

Figure 5 Site B Student Scores of Phonemic Awareness on the TOPA. Targeted score 15% ile rank

In Figures 6 and 7, word attack skills, as shown on the Woodcock Word Attack Subtest 4 in September, indicated that nearly three-fourths of all students in the targeted groups were below grade level expectations (1.0). Figure 6 illustrates that in January all of the students at Site A achieved grade level or better scores on this test, and Figure 7 illustrates that at Site B 92% scored at or above grade level (1.5).

Figure 6

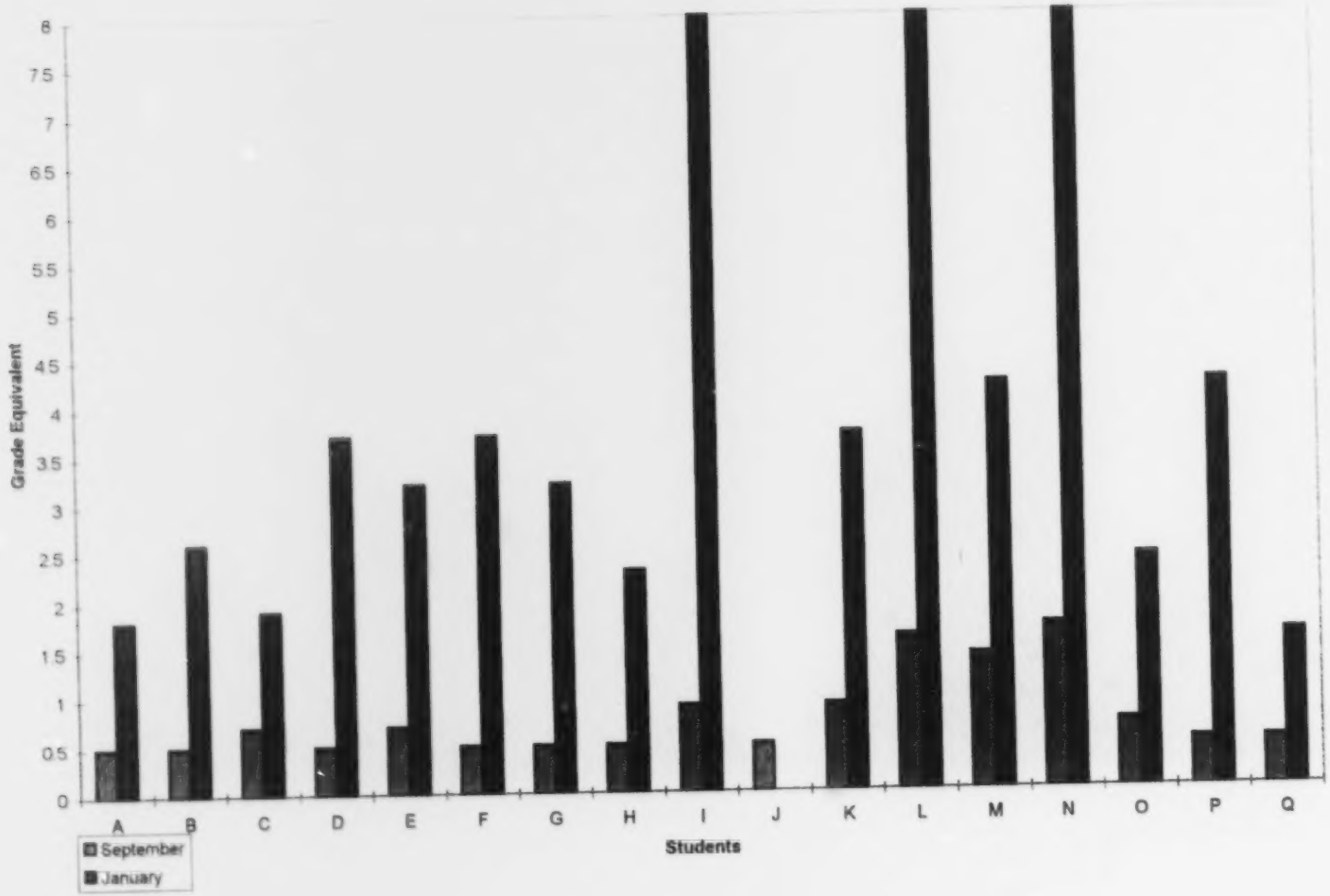

Figure 6 Site A Student Scores of Word Attack Skills on the WRMT. Targeted Score 1.6 G.E.

Figure 7

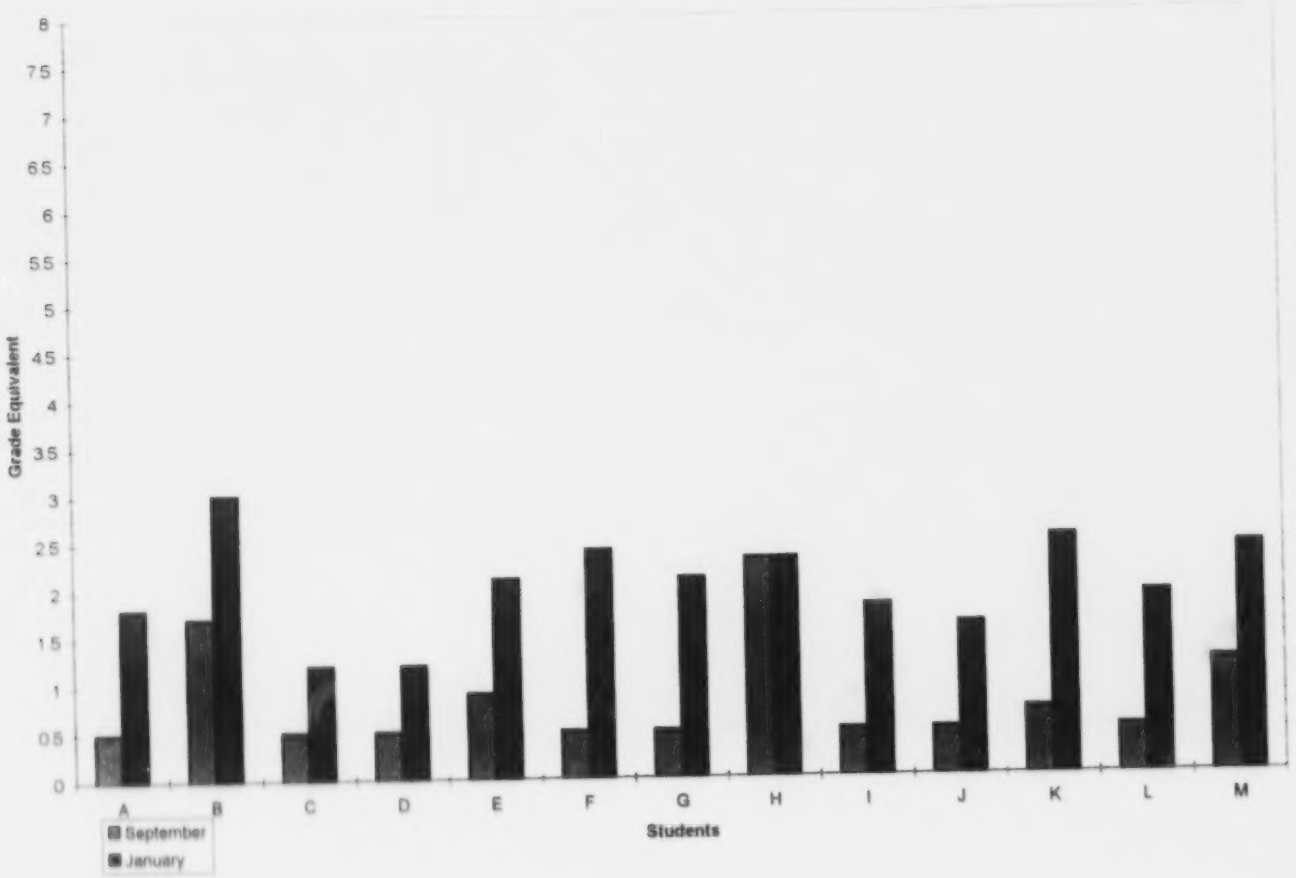

Figure 7 Site B Student Scores of Word Attack Skills on the WRMT. Targeted Score 1.6 G.E.

Tables 5 and 6 illustrate the comparisons of students' attitudes toward reading and the process of learning to read. In September, most students had a very positive attitude about reading; however, there was a significant number of students who expressed apprehension about evaluating themselves as good readers and writers. In January, a clear majority of the targeted students at both sites liked to read and evaluated themselves as good readers. However, 40% of the students at Site A said that they did not like to write even though most thought they were good writers.

Table 5

Student Responses on Self-Assessment Survey

Do you like to read?	13	2	2	9	4	0
Are you a good reader?	14	3	0	11	0	1
Do you like to write?	10	6	1	8	4	0
Are you a good writer?	14	3	0	10	2	0
Are you a good listener?	15	2	0	7	5	0
Are you a good speaker when you speak in front of the class?	15	2	0	6	4	2

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Table 6

Student Responses on Prereading Attitude Survey

	[illegible]		
Teacher reads aloud	27	0	3
Receiving book as a present	27	2	1
Reading books at home for fun	26	2	2
Reading aloud to a group	21	5	4
Reading aloud to teacher	23	3	4
Feelings about coming to a word you don't know	7	6	17
Feelings about doing worksheet or a workbook	24	4	2
Feelings about going to school	26	1	3
Feelings about how well you read	23	3	5
Friends' feelings about your reading	25	4	1

* Site A and Site B results were similar, so they were combined.

Conclusions and Recommendations

The first step in this intervention was to assess the students phonemic awareness skills. These assessments enabled the researchers to determine the specific areas which needed to be addressed and to identify that all the students could benefit from this instruction. After determining the need for this intervention, the teachers at both sites and the speech pathologist at Site B began to implement the plan of action put forth in this paper.

The early listening instruction gave the students an easily recognizable cue when it was vital to be alert, hands and body quiet, watching the person who was talking. This listening cue was an essential implement to establishing good listening and the verbal cue "Brain Alert" helped the students give good attention without delay.

Giving the students a kinesthetic tool to use in their acquisition of sound/symbol associations proved to be not only academically beneficial but also a boost in the area of motivation. The students were highly motivated to blend and segment sounds as they acquired new hand signals. Establishing proficiency in sound/symbol associations was much more effective this year than it has been in previous years; students learned the associations faster, remembered them longer, and experimented with blending sounds into words almost immediately. It was not unusual for the students at Site A to stop other school personnel in the hallways or on the playground and demonstrate their newest

hand signal or spell out newly learned words using their hand signals and segmenting skills. This enthusiasm about phonemic awareness is unprecedented.

While some students may have had good exposure to print before coming to first grade, many have not had this advantage. The sentence segmenting activities gave the students an opportunity to become familiar with the structure of sentences and to move from that concept into the structure of individual words.

The researchers observed a strong relationship between the high motivation levels during sound/symbol association and segmenting lessons and the success when follow-up lessons in blending occurred. Students were excited to learn the connection between the letter sounds and the words they make. Most students were quite surprised with their first experiences at dictation because they had no idea that they actually knew as much about the spellings of words as they did. Their proficiency with sound/symbol associations was so greatly enhanced and reinforced by the hand signal cueing that they retained these associations at a more rapid pace than these researchers have ever seen first graders do previous to this year.

The goal of this intervention was to help students acquire phonemic awareness skills at an accelerated rate so that they could have more immediate success in their basal reading programs. This immediate success could then serve as a springboard for students to motivate them to want more reading

skill, therefore, to practice reading more and to become better readers. Without a doubt, this has been the result. Almost all the students in the regular division classroom at Site A were decoding words well by the second nine week grading period. At Site B, there was a high mobility rate. When the students were tested in September, there were twenty-one students, seven of whom were receiving special education services. Due to the extreme delays and behavior problems of some of the special education students, a part-time substitute teacher was hired to work with five of these students. During the course of the next three months, this targeted first grade was restructured three times. At the time of the follow-up testing in February, thirteen of the original students tested in September remained in the class. Two of these students are receiving special education services, and one has been referred for special education testing. It should be noted that the student who has been referred for testing also displays behavior and emotional problems. At times, he is very uncooperative and refuses to listen and do as he is instructed. At Site B, the researchers have found that a few students still show delays in phonemic awareness and word attack. In comparing their scores, the Site B students have made gains, yet two are not up to grade level. With continued instruction, the Site B special education teacher is hopeful that by the end of this school year, these students will be at grade level or above. Parents of a learning disabled student in Site B have commented that with the hand signals their

son now has the tools to become a good reader. They said that in their opinion, had he not learned the hand signals, he would still be struggling to read at the age of eight. Another set of parents is thrilled that their son is beginning to read. This student has memory and recall delays. His parents have noted that his confidence in reading has improved greatly, and he wants to read all of the time.

The researchers at both sites are confident that they have achieved their goal. Because of the repeated restructuring of the class at Site B, fewer students there reached the stated goal, but all of those students who remained in the class did show strong improvement. As the Special Education Teacher Researcher at Site B, I feel that, after nineteen years of trying different methods, I have finally found a program that will reach my learning disabled students. The skills my students have learned have enabled them to decode words successfully. My students want to read, and they are excited about reading. Their confidence in their reading ability has skyrocketed because of the strategies I have implemented during this intervention.

As the speech pathologist at Site B, I have taught phonemic awareness within speech therapy sessions. Modeling, consulting, and implementing training into the classroom has proven to be very beneficial to those students who were considered seriously at risk as well as to those who were already beginning to break the alphabetic code. When classroom teachers develop a knowledge of the systematic, sequential approach to teaching phonemic

awareness, students' needs are addressed throughout the school day not just during speech therapy sessions. Phonemic awareness then becomes an integrated skill, and these lessons are transferred to reading, spelling, and composition. Using kinesthetic and tactile assistance aids a fast acquisition of sound/symbol association and promotes segmenting proficiency. Students are motivated to use these skills, and that perpetuates a desire to read more, thereby increasing automaticity of reading, positively affecting reading comprehension. It is very exciting to observe these students in action. I highly recommend continuing with whole classroom phonemic awareness instruction.

As the researcher at Site A, I feel that this is the time for me to make a personal observation. I have been teaching first graders to read for twenty years. I have always incorporated a structured phonics curriculum into my reading instruction. However, I have never seen students acquire sound/symbol association, segmenting, and blending skills so rapidly and so completely. Usually, there are at the very least five or six students who are struggling to make the necessary phonemic awareness connections that are prerequisite to decoding. This year, every student in my class is well on the way to rapid decoding. This strategy works so well because is utilizes the skill the students already have, oral language. When students come to school, most of them are speaking well. With the hand signal connection, I asked students to analyze how they produced that spoken sound and then helped them make the connection from

that sound production to the printed letter using a kinesthetic memory link, the hand signal. Connecting the previous knowledge of producing the sound, and the new concept of the sound being represented by a printed letter, with the concreteness of a kinesthetic motion has proven to be an extremely effective strategy. While new research may find even better ways to develop these essential reading skills, the researchers at both sites believe that the approach carefully developed and outlined in this paper is an effective way to begin to teach students to acquire the reading skill and, therefore, to succeed in their basal programs. The authors know their students benefited immeasurably from this intervention and its application in the classroom. They also know that they too have benefited from the time and effort involved to develop and implement this project. Without a doubt, reading instruction in their classrooms will always follow this pattern in the future.

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Appendix A

Test of Blending and Segmenting Sounds

This test should be administered by the teacher to each student individually.

Blending

Teacher: " I am going to say some sounds. Listen carefully and tell me the word you hear."

1. s. . . un	(sun)
2. f. . . at	(fat)
3. m. . .op	(mop)
4. s. . . oup	(soup)
5. l. . . ip	(lip)

Segmenting

Teacher: " Here are some blocks. Let's pretend they make sounds. I am going to say a word. Pull a block out of the pile for every sound you hear. Let's practice. SEAT , NO

Instructions to the teacher:

Say five words - record results on record sheet.

1. leaf
2. bike
3. not
4. up
5. same

Appendix A - continued

Test of Blending and Segmenting Sounds Record Sheet

NAME_____

BLENDING (Use + or -)	Date_____	Date_____	Date_____
1. sun	_____	_____	_____
2. fat	_____	_____	_____
3. mop	_____	_____	_____
4. soup	_____	_____	_____
5. lip	_____	_____	_____

Segmenting

1. leaf	_____	_____	_____
2. bike	_____	_____	_____
3. not	_____	_____	_____
4. up	_____	_____	_____
5. same	_____	_____	_____

Teacher Observations:_____

_____

_____

_____

Appendix B

Test of Sound / Symbol Association

Materials needed: Answer sheet grid and pencils

Instructions: Distribute copies of answer sheet grids. Instruct the students to "Listen carefully to the sound I make. Write the letter that makes that sound."
"What letter makes _____?

Present the letter sounds in random order. Test 6 sounds per session until all 26 sounds are presented. (Include hard "c" and "g", short vowels, "y" as a consonant and all other consonant sounds. Test should be administered in such a way that students can not see the alphabet.)

Note: Teachers should observe student's behavior, recording on record sheet student's who try to copy or search for other visual clues.

Appendix B - continued

Test of Sound / Symbol Association Record Sheet

NAME _____

(Use + or -)	Date_____	Date_____	Date_____
A	_____	_____	_____
B	_____	_____	_____
C	_____	_____	_____
D	_____	_____	_____
E	_____	_____	_____
F	_____	_____	_____
G	_____	_____	_____
H	_____	_____	_____
I	_____	_____	_____
J	_____	_____	_____
K	_____	_____	_____
L	_____	_____	_____
M	_____	_____	_____
N	_____	_____	_____
O	_____	_____	_____
P	_____	_____	_____
Q	_____	_____	_____
R	_____	_____	_____
S	_____	_____	_____
T	_____	_____	_____
U	_____	_____	_____
V	_____	_____	_____
W	_____	_____	_____
X	_____	_____	_____
Y	_____	_____	_____
Z	_____	_____	_____

Teacher Observations: _____

_____

_____

_____

Appendix C

Evaluation Data Sheet

Student's Name_____

A. Concept Recognition
(Record date of test and + or -)

Story Sentence Syllable Word Letter Sound

____ _____ _____ ____ ____ ____

TOPA Score : _____

B. Segmenting

WRMT - 4 Score _____

Sentence - Visual Cue

Test of Sound / Symbol Association

_____ _____ _____ _____ _____

Sentence - Auditory

_____ _____ _____ _____ _____

C.. Segmenting

1. leaf _____ _____
2. bike _____ _____
3. not _____ _____
4. up _____ _____
5. same_____ _____

D. Blending

1. s...un (sun) _____
2. f...at (fat) _____
3. m...op (mop) _____
4. s...oup (soup)_____
5. l...ip (lip) _____

E. Nonsense Words
Reading _____ _____ _____ _____
Dictation_____ _____ _____ _____
Group Dictation Score _____ _____

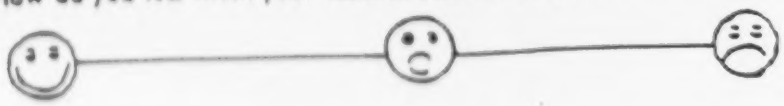
(Use + or -)	Date_____	Date_____
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____
F	_____	_____
G	_____	_____
H	_____	_____
I	_____	_____
J	_____	_____
K	_____	_____
L	_____	_____
M	_____	_____
N	_____	_____
O	_____	_____
P	_____	_____
Q	_____	_____
R	_____	_____
S	_____	_____
T	_____	_____
U	_____	_____
V	_____	_____
W	_____	_____
X	_____	_____
Y	_____	_____
Z	_____	_____

Teacher Observations:_____
_____
_____
_____

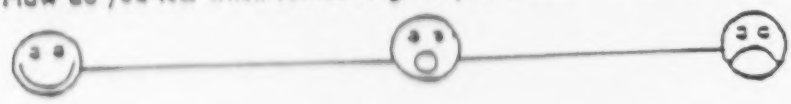
Appendix D

Reading Attitude Inventory

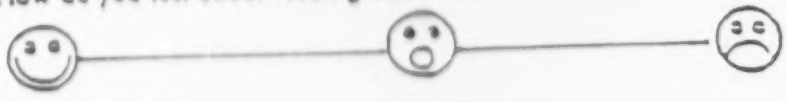
1. How do you feel when your teacher reads a story aloud?



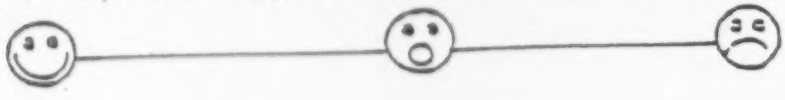
2. How do you feel when someone gives you a book for a present?



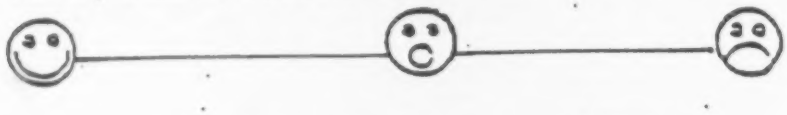
3. How do you feel about reading books for fun at home?



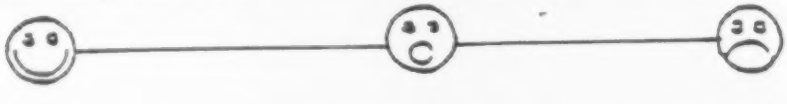
4. How do you feel when you are asked to read aloud to your group?



5. How do you feel when you are asked to read aloud to your teacher?

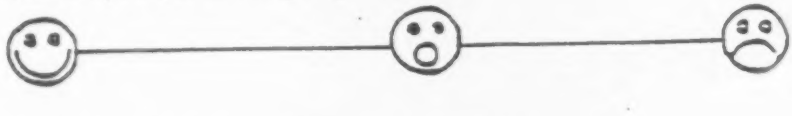


6. How do you feel when you come to a word you don't know?

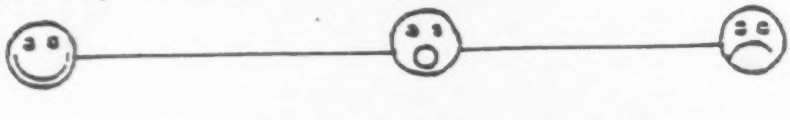


7. How do you feel when it is time to work on a worksheet or workbook?

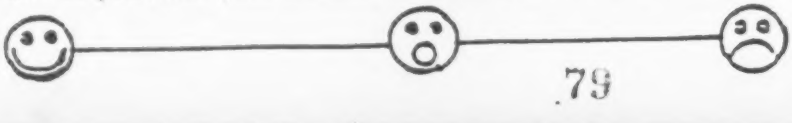
8. How do you feel about going to school?



9. How do you feel about how well you read?



10. How do you think your friends feel about your reading?



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Student Self-Assessment Survey

Student Name _____ Date _____

Directions: Read each question. Answer each question by checking one or more of the boxes or writing on the lines.

1 Do you like to read?

- ❑ I love to read.
- ❑ I like to read sometimes.
- ❑ I read only when I have to read.

2 What kinds of books or stories are easy to read, and what kinds are hard?

_____

3 Are you a good reader? What can you do to become a better reader?

_____

4 Do you like to write?

- ❑ I love to write.
- ❑ I like to write sometimes.
- ❑ I write only when I have to write.

5 What kinds of things are easy to write, and what kinds are hard?

_____

Appendix D - continued

STUDENT SELF-ASSESSMENT SURVEY, CONTINUED

STUDENT NAME _____ DATE _____

6 Are you a good writer? What can you do to become a better writer?

_____

7 Are you a good listener? What could you do to be a better listener?

_____

8 Are you a good speaker when you speak in front of the class? What could you do to be a better speaker?

_____

9 What do you like best about school? Name one or two things you like.

_____

10 What do you like to do in your free time?

_____

Appendix E

Letters Have a Name and Make Sounds

Objective : To learn that letters have names and make sounds.

Gather the students around an alphabet chart. Call students attention to the alphabet letters on the chart. As an optional exercise the teacher may want to pass out individual letters of the alphabet to each student and encourage students to find and point out where in the alphabet they see the same letter as the one they are holding ; those students who wish , may also say the letter name and give the sound the letter makes.

Teacher : " Letters have a name. You have a name, but you don't say , Sara, Sara, Sara, all day. You say lots of sounds; letters say sounds. Connecting the sounds that letters say into words is the process called reading."

Appendix F

Vowel Strings

Objective: To identify which letters are vowels and what short vowel sounds these letters can make.

During the first week of school the students will participate in a lesson where the alphabet is " pulled apart." The vowels will be pulled out of the alphabet , and they will be displayed above the consonants. Short vowel sounds will be modeled orally by the teacher.

Hand signals for all of these short vowel sounds will be taught in one or two days. Spelling words for the week will help determine which vowels are taught first. Sounds will be associated with tactile -kinesthetic, visual picture and sound production as illustrated in the Easy Does It text and then associated with the written symbol or letter.

Appendix G

No Schwa !!!

Objective : To learn consonant sounds using tactile/kinesthetic cueing.

During daily phonemic awareness sessions, the students will be taught a limited number of consonants. They can begin to use "voiceless consonants" which are easily visualized by students and appear more often in words (i.e. M, S, F, P, T).

Students will be able to begin segmenting and blending these words or syllables very soon in these sound/symbol lessons. As these sounds are taught, it is important to avoid modeling these sounds with a schwa following the consonant productions. Teach only the specific consonant sound.

" t "	not	"ta"
" m"	not	"ma"
"s"	not	"sa"
"p"	not	"pa"
"f"	not	"fa"

Appendix H

Sound Production - A Tactile Association

Objective : To learn to associate the method of producing the sound with the sound and letter name.

Along with the hand cueing presentations, students will be given information on tongue and mouth placement for each sound learned. For example, the teacher will demonstrate the letter "m" " See the two bumps on the 'm"? They look like your two lips. To make a "m" sound you need to put your two lips together and make them buzz a little bit." This enables the students to gain additional knowledge to use in associating the sound/symbol relationship.

Each time a hand cue from the "Easy Does It" cards is introduced, the students will be encouraged to feel their throat with their fingers or be aware of what part of their tongue or mouth is doing the work of producing this sound.

This tactile connection is another tool in the acquisition of sound/symbol association.

Anatomical Placement Pictures

Appendix I

from "Easy Does It" (Chamberlain & Strode) [75]

Anatomical Placement Pictures

Appendix I - continued from "Easy Does It" (Chamberlain & Strode) [76]

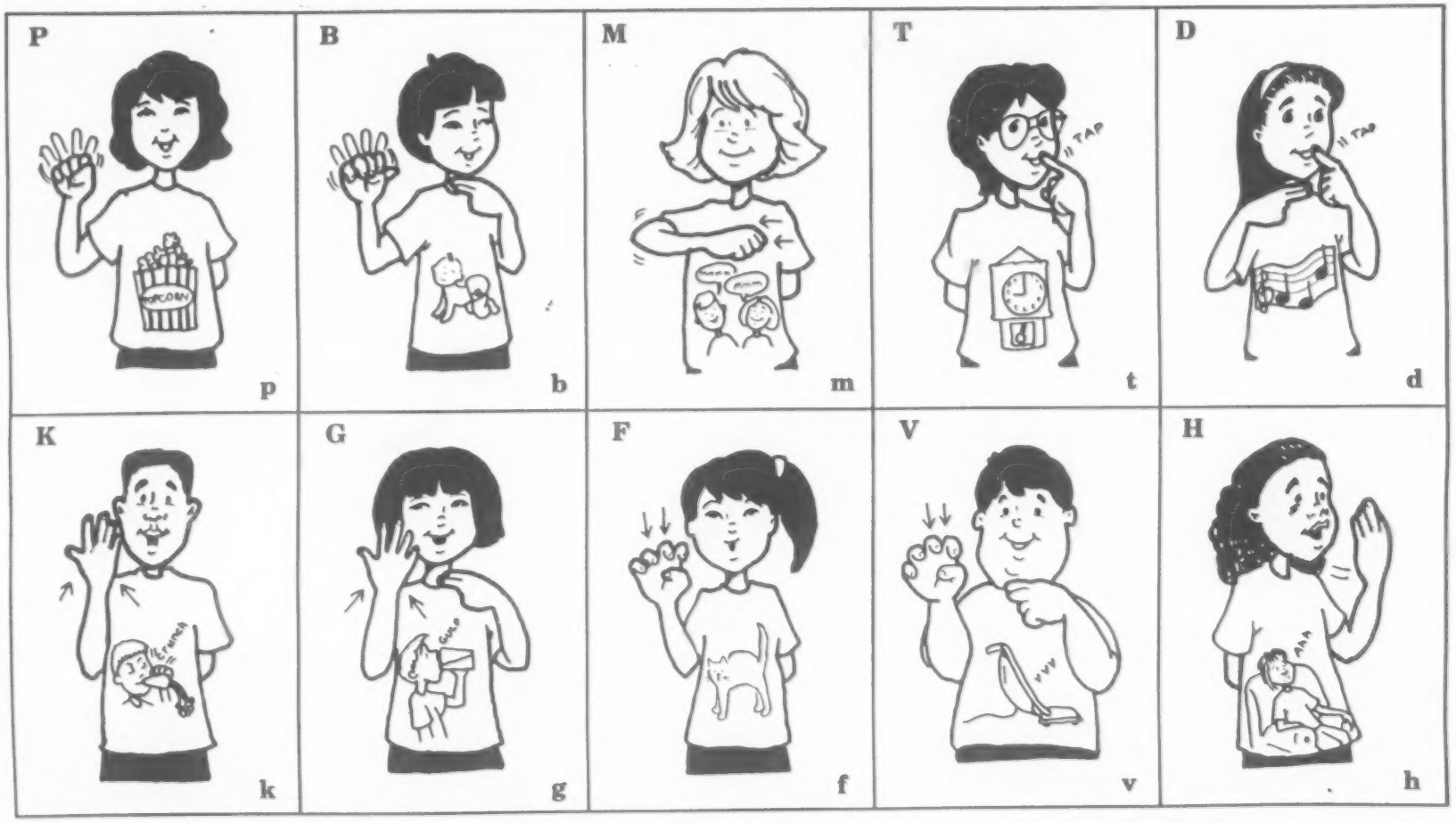
Vowel Trading Cards

Use these cards to teach vowel sounds and their hand signals.

Appendix J from "Easy Does It" (Chamberlain & Strode) 77

Consonant Trading Cards

Use these cards to teach consonants and their hand signals. Use the picture symbols as added cues for teaching consonant sounds.



Consonant Trading Cards

Use these cards to teach consonants and their hand signals. Use the picture symbols as added cues for teaching consonant sounds.

L l	**R** r	**N** n	**Sh** sh	**Ch** ch
J j	**S** s	**Z** z	**W** w	**Y** y

Hand Signal Descriptions

Here are the descriptions for the hand signals for vowels and consonants. Use whichever hand is more comfortable for you and your student. The hand signals are pictured on the vowel trading cards, page 6, and the consonant trading cards, pages 10-11, in the Materials Book.

The Short Vowel Hand Signals

a Raise right hand to right shoulder with palm facing student. Twist palm toward you as you say short *a*.

e Raise hands to ear level and push up as you say short *e*.

i Pinch back of left hand with fingers of right hand. Let go as you say short *i*.

o Put palms apart facing each other at chest level as you say short *o*.

u Put palms apart facing each other at stomach level as you say short *u*.

The Long Vowel Hand Signals

a Make a fist with thumb extended up as you say long *a*.

e Open both hands at shoulder level facing student. Hold them as you say long *e*.

i Point to yourself with both pointer fingers as you say long *i*.

o Join hands together over your head forming a circle with your arms as you say long *o*.

u Extend arms down at side with hands open and palms facing student as you say long *u*.

The Consonant Hand Signals

p The popcorn sound. Make fist at shoulder level, palm facing student. Spring fingers open quickly as you say "p."

b The baby sound. Same motion as "p," but put other hand on throat as you say "b."

m The humming sound. Make a fist with palm down. Pull fist slowly across body at chest level as you say "m."

t The ticking sound. Tap index finger on top lip as you say "t."

d The music sound. Same motion as "t," but put other hand on throat as you say "d."

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Hand Signal Descriptions

The Consonant Hand Signals, *continued*

k The crunching carrot sound. Open hand, over shoulder, palm facing away from student. Pull hand over shoulder as you say "k."

g The drinking sound. Same motion as "k," but put other hand on throat as you say "g."

f The angry cat sound. Make claw, palm facing student at face level. Move hand down as you say "f."

v The vacuum sound. Same motion as "f," but other hand is on throat.

h The sighing sound. Open hand facing your lips. Pull hard away from mouth as you say "h."

l The singing sound. Hold index finger and thumb in L-shape at mouth level, facing student as you say "l."

r The growling bear sound. Open hand, palm facing you at mouth level, next to head. Move hand up and back as you say "r."

n The neighing sound. Put index finger on nose as you say "n."

sh The quiet sound. Put your index finger sideways on your lips as you say "sh."

ch The train sound. Make fist at shoulder level, facing student. Push up fist as you say "ch."

j The jingle sound. Same motion as "ch," but put other hand on throat as you say "j."

s The snake sound. Open both hands at chest level, with palms facing student. Push hands out as you say "s."

z The buzzing sound. Similar motion as "s," but put other hand on throat.

w The whistle sound. Use index finger to circle lips as you say "w."

y The cheerleader sound. Hold thumb and index finger in a V-shape at chin level. Move hand toward throat as you say "y."

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Appendix K

Practice Practice Practice !

Objective : To practice making the connection between the letter and the sound.

- Vowels and Consonants - Students use hand signals and sound

- Walking Consonant line adding a vowel to a consonant.

- Vowel block roll - Students roll blocks that have vowels and consonants printed on them to blend the sounds into words.

Appendix L

Board Activities

Students will practice Vowel-Consonant pattern decoding in activities on the board, with consonant cards and with vowel blocks moving, walking a line of V-C cards on the floor.

Initially students must use hand signals. Students will be asked to say syllables with just their hands, with both hands and saying out loud or first saying it out loud.

BOARD ACTIVITIES

1. The teacher will write a vowel-consonant pattern word on the chalkboard. Then elicit a student response about what the word is - emphasizing that the student must use hand cueing and letter production to contribute the answer. (it > im > is)

2. The teacher can then add an initial consonant , " Show the class this word with your hand signals." (s - i- p) " What word do the letters make?" Continue to change sounds on the board and have students tell the class with hand signals and verbal cues what the new word is.

Appendix L - continued

CARDS AND BLOCK

(Cards with vowel block moving)

Materials : Vowel Blocks Consonant Cards

Student has a consonant card and then rolls the vowel block and uses hand signals and verbalizes the V-C combination that is made. Continue rolling the vowel block while retaining the same consonant card to change syllables. A stack of consonant cards is also provided to change the final sound.

This activity can also be done at the C-V-C word level.

FLOOR CARDS

Vowel and consonant cards are lined up parallel to each other on the floor (taping the cards to the floor is an option) . Students take turns walking on each side of the V-C combination and saying it. This can be done in teams or small groups . A token cup is placed at the end of the line so that a token can be picked up by the student or team as the sound walk is completed. If the student misses one word, it is effective to have the student go back one space and start again.

Appendix M

Rhyme Time

Objective: To learn to form and read rhyming words.

Lessons will begin with rhyming word families and much practice will be provided.

Moving blocks

To facilitate learning the concept of rhyming words in word families, the students will be given three wooden blocks. Consonant letters will be written - one per side of each block for two of the three blocks. On the third block, a different vowel letter will be written on each side. The students will roll one of the consonant letter blocks, then the vowel block. At this time the students can be asked to read what these two letters say when they are put together. Lastly, the other consonant block can be rolled. The students will read the word that was rolled. Then the students can practice making and reading rhyming word families by rolling the first consonant block to make new words . The middle block (vowel) can be rolled again after a certain number of rhyming words are made.

Appendix M - continued

Using graph paper

In the same manner of forming and reading rhyming words with the moving blocks, one inch square graph paper can be used. A C-V-C word is written on a sheet of this graph paper, one letter per box. A new word is formed by writing a different consonant letter in the first box right under the previous word and writing the same vowel and final consonant letter. Continue in this manner for practice in reading rhyming words.

Reading rhyming books

At this point the teacher wants to build automaticity of segmenting words. This is very important for reading success.

The following is a list of some books containing rhyming words. Discuss hearing the rhyming words as the books are being read.

The Giant Jam Sandwich by John Vernon Lord

Goodnight Moon by Margaret Wise Brown

Each Peach Pear Plum by Janet and Allan Ahlberg

The Book of Pigericks by Arnold Lobel

Many of the Dr. Seuss Books

Appendix N

Nonsense Words Build Decoding Skills

Objective : To learn to segment words without using sight word memory skills.

Monster (Nonsense) words - Developmental Sequence

Flash cards will be used

Making monster words with blocks

Writing (Dictation) of monster words

Samples of worksheets that children can practice reading at home or at school. They contain nonsense words; therefore, they discourage students relying on memory of sight words. These words can also be used for dictation.

List 1

wak	feg	bef	san	mek	dep
dep	pav	yag	tes	nen	zal

Appendix N - continued

2.	tiz	dif	mev	wid	rin
	fet	kes	gim	pip	jil
3.	wot	bok	pif	sof	gob
	tig	hig	non	zon	rig
4.	puv	jup	wok	hud	yuj
	toz	bom	wug	lut	nop

Appendix O

Make the Manipulative Connection

Objective : To understand segmenting of words and conceptualize sound changes within words.

Teacher:

" Let's pretend blocks are sounds."

Teacher will present a pile of plain blocks or other manipulatives.

The teacher will suggest that the student pretend that the blocks are sounds.

Teacher:

"I will say a word. Pull a block from the pile for each sound you hear in the word."

Appendix P

Where is the Vowel?

Objective: To improve auditory skills so that a student will be able to hear and identify vowels embedded in words.

This lesson may be best facilitated in one to one teacher -student sessions. It may be taught as a whole group or small group lesson depending on attention span and time commitment.
Each student will be given a set of flash cards containing the vowels.
The teacher will say a word without any visual clues.
The students will be requested to hold up a vowel card that indicates the vowel sound they heard in the word the teacher said.
An alternate response could be a hand signal for the appropriate vowel or a verbal response stating the vowel , depending on the student's abilities and the goal for the lesson. Possible progression of words would be to begin with short vowel words, proceed to nonsense short vowel patterns and then to long vowel pattern words.

Appendix P - continued

Suggested word lists may include some of the following words.

Short vowel	Nonsense	Long vowel
fun	vim	tune
tan	het	meat
hen	nam	time
bit	dov	cake
box	kul	suit

Appendix Q

More Robot Talk

Objective: To learn to blend words in a language context.

Robot talk , " I'm going to say a word, but I'm going to talk like a robot (Phonological Awareness Training for Reading, Torgesen & Bryant, 1994) and break up the word, like this
ba nana. Now I'll say another fruit, and you tell me what I said, gr ... apes."

It is good to use this exercise by choosing a category and working on vocabulary words that are in that same category during the lesson. The same lesson can be taught the following day using another category or reading vocabulary or spelling words.

Appendix R

Continuant Sounds

Objective: To learn to auditorily blend C-V-C sounds.

Continuant sounds, as previously discussed, will eliminate intrusion of the schwa in sound production. Begin lessons with "s", "m", "f", words. Most students will be able to learn this skill if reminded to tell the teacher the word she said. (especially if it's in a language lesson involving categories, etc. Students often try to give a rhyming word unless some category is suggested) Small groups of students not able to grasp this concept will be formed and instructed using the addition needs approach. (See Appendix S, T, U)

Teacher: "I'm going to say some words using "Robot talk". You (the student) say the same word using "People talk". (The student blends the word back together in this process.)

Sessions will begin with real words and move into nonsense words.

Continuant sounds with real words	Non-continuant sounds - Don't include schwa sound
f an	n ap
s un	p up

Appendix S

Blend This Word
"Robot People"

Objective: To learn to blend words using picture cues.
Materials: Large robot poster
Picture cards

Pictures will be utilized during lessons to aid students who are having difficulty blending with only auditory cues. The pictures will help the students to understand that there is a specific (targeted) word to look and listen for. The segmented word will be presented by the teacher using "Robot talk", and the student will choose the word card being demonstrated and say it and then feed the word card to the robot.

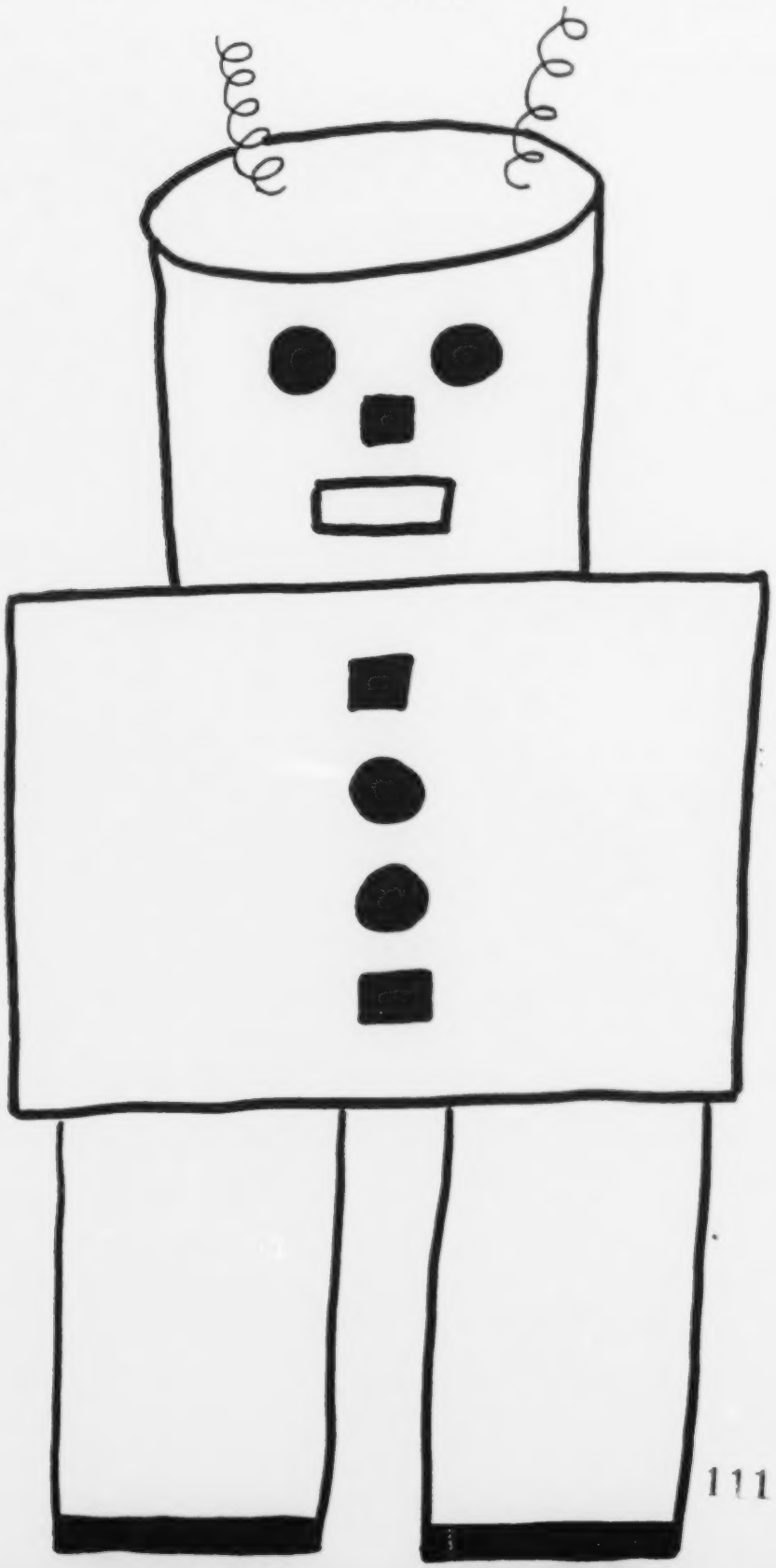
Small group lesson:

Students who are having difficulty blending while using only auditory cues can be gathered into a small group. The large robot poster with an opening cut in it to insert word cards is displayed .

Teacher: "I have some pictures for us to talk about today. Let's take turns naming these pictures. I'm going to try to trick you by talking like a robot. The robot talks funny. He breaks up his words when he talks." Give examples . When a child in the group blends the word on the card correctly, he/she may feed that card to the robot.

Appendix S - continued

Robot Poster



Appendix T

Sound by Sound

Objective: To learn to blend Consonant-Vowel-Consonant words using continuous sounds.

Small Group Blending

Groups of two to four will be formed. Students are given verbal cues then combined with visual print C-V-C word cues.

Teacher: "I'm going to say this word very slowly. I'm going to say three sounds. See if you blend the sounds together and tell me the word I said."

(If a student cannot tell the word after two or three repetitions, continue to use a variety of pictures from which the student can choose.)

The session should continue with stretched blending of C-V-C words until each child has had several chances to blend a word.

Small group blending

Some students are not able to hear and blend the words when they are decoding a word. In an effort to aid in blending these students will work in small groups to learn to synthesize the skill of blending by hearing a continuous sound-by-sound production of the word.

m- - - a- - -n

Appendix U

Call in the Reinforcements!

Objective: To reinforce blending skills for students with special needs.

Some students may need to see a word put together and taken apart. This will be done with

1.) Blocks with letters on them which will represent the sounds, take the blocks apart and put them back together

2.) Display a word on tagboard. Cut the word apart or ask the student to cut it apart letter by letter; then ask the student to tape the letters back to make the same word.

3.) String the letters of a word on a rubber band in the correct sequence. (i.e. three separate letters) Allow the students to stretch the rubber band out and relax it to see how the individual letters can be separated and rejoined.

Appendix V

Homework Check Sheet

Assignment: _____

_____

I helped my child

Blend sounds _____

Segment words _____

Read sentences _____

Read stories _____

Practice vocabulary _____

Practice spelling words_____

Other _____

Questions or comments for the teacher: _____

_____

Parent's Signature

_____